REMARKS

Claims 1-3, 6, 8 and 12-14 are pending in this application. By this Amendment, claim 1 is amended, claims 12-14 are added and claims 4, 5, 7 and 9-11 are canceled. Reconsideration of the present application based on the above amendments and the following remarks is respectfully requested.

I. Restriction Requirement

The Office Action requests affirmation of the provisional election of claims 1-8. Applicant respectfully directs the Examiner's attention to the confirmation of telephone election filed March 25, 2004. The confirmation of telephone election elected group I, claims 1-8, with traverse.

II. Claim Objections

The Office Action objects to claim 1 and asserts that the phrase "the anode" does not appear to fit grammatically within the line. Claim 1 has been amended to remove the phrase "the anode". As such, withdrawal of the objection to claim 1 is respectfully requested.

III. Claim Rejections

The Office Action rejects claims 1, 3, 4 and 6 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,739,545 to Guha; claim 2 under 35 U.S.C. §103(a) as being unpatentable over Guha in view of U.S. Patent No. 6,023,073 to Strite; claims 5 and 7 under §103(a) as being unpatentable over Guha; and claim 8 under §103(a) as being unpatentable over Guha in view of U.S. Patent No. 6,252,253 to Bao. These rejections are respectfully traversed.

None of the applied art disclose an organic electroluminescent device comprising a cathode including a first cathode and a second cathode, the thickness y (angstrom) of the first cathode being such that $55 \leq y \leq 65$, the thickness z (angstrom) of the second cathode being such that $10 \leq z \leq 20$.

Instead, Guha merely discloses a glass substrate 52, an ITO anode 54, 12 nm CuPc layer 58, 60 nm NPB layer 60, 60 nm Alq layer 62, 5 nm Ca metal film 64, 20 nm ZnSe layer 66, and 5 nm Al metal film 68 (Fig. 3). Moreover, Guha discloses that the metal film, such as Ca, determines the electron injection efficiency and prevents the ZnSe from diffusing into the organic electroluminescent layer (col. 1, line 67-col. 2, line 2); that if the OLED is formed on a glass substrate 32 with an ITO anode 34 light is emitted from both sides, and the OLED is at least partially transparent (col. 2, lines 62-67); that injection of electrons from the ZnSe into the Alq is assisted by the 5 nm Ca layer, that the Ca layer acts as a diffusion barrier (col. 4, line 67-col. 5, line 4); and that a metal layer thin enough to ensure partial transparency or a thick ITO layer may be deposited to provide the lateral conductivity across the diode (col. 5, lines 10-14). Strite discloses an Al-metallized Si chip 95 comprising a transparent metal or a semiconductor cap metallization 99 (Fig. 10). Bao discloses a dual layer cathode formed over the topographic PPV layer followed by a layer of aluminum (col. 7, lines 18-20).

The Ca metal film 64 and the Al metal film 68, of Guha, allegedly correspond to the "first cathode" and the "second cathode," respectively, recited in claim 1. As discussed above, Guha discloses that the first cathode is 5 nm and the second cathode is 5 nm. Therefore, Guha does not disclose the thickness y (angstrom) of the first cathode being such that $55 \leq y \leq 65$, and the thickness z (angstrom) of the second cathode being such that $10 \leq z \leq 20$, as claimed in claim 1. The secondary references, Strite and Bao, do not overcome this deficiency.

Moreover, the Office Action asserts that it would have been obvious to modify the thickness of the first cathode and the second cathode because where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. However, there is no evidence that the thicknesses of the "first cathode" and "second cathode," of Guha, are not already within the optimum range for Guha's

invention, and Guha simply offers no suggestion that these thicknesses could or should be modified for any reason. As such, the thickness of the first cathode and the thickness of the second cathode, as claimed in claim 1, would not have been obvious.

Furthermore, the specification discloses on page 7, paragraph 24, that the thickness of the first cathode is preferably from 55 to 65 angstroms because when the thickness is less than 50 angstroms, due to the influence of the work function of the second cathode, there may be a risk that the threshold voltage of the device is increased; in addition, when it is 80 angstroms or more, there may be a risk in that that transmittance is significantly decreased. Moreover, the specification discloses on page 7, paragraph 28, that the thickness of the second cathode is preferably between 10 to 20 angstroms, because when it is less than 10 angstroms, electrical conductance cannot be obtained, and in addition, when the thickness is more than 20 angstroms, there may be a risk in that the transmittance is significantly decreased by metal reflection in the material itself for the second cathode.

As such, there are significant differences between the of the features of claim 1 and Guha. For example, as discussed above, the specification of the present invention discloses that when the thickness of the first cathode is less than 50 angstroms, there is a risk that threshold voltage will be decreased. As such, the first cathode, as claimed in claim 1, claims a thickness of between 55 and 65 angstroms. This thickness is clearly outside the range where threshold voltage may be a problem. Guha, on the other hand, only discloses a first cathode thickness of 5 nm. As such, Guha is close to the range where threshold voltage will be decreased. Moreover, Guha fails to put forth any disclosure that would have provided motivation to increase the thickness of the first cathode. As such, the thickness y (angstrom) of the first cathode being such that $55 \leq y \leq 65$, as claimed in claim 1, would not have been obvious.

Similarly, with respect to the second cathode, in Guha the second cathode has a much larger thickness (5 nm) than the second cathode as claimed in claim 1 (10 to 20 angstroms). Moreover, Guha fails to put forth any disclosure as to why a thickness several times smaller than the thickness disclosed in Guha would have been obvious. Instead, Guha puts forth that a metal layer thin enough to ensure partial transparency or a thick ITO layer may be deposited to provide the lateral conductivity across the diode. Guha does not suggest that the second cathode both ensure transparency and provide conductivity. As such, because the thickness of the second cathode is several times greater in Guha, there is a risk that the transmittance will be decreased. Thus, the thickness z (angstrom) of the second cathode being such that $10 \leq z \leq 20$, as claimed in claim 1, would not have been obvious.

Moreover, it is respectfully submitted that neither Strite nor Bao make up for the deficiencies of Guha.

Thus, none of the applied art disclose all of the features of claim 1. As such, for at least the reasons discussed above, it is respectfully submitted that claim 1 is distinguishable over the applied art. Furthermore, those claims which depend from claim 1 are likewise distinguishable over the applied art for at least the reasons discussed above, as well as for the additional features they recite. Accordingly, withdrawal of the rejections is respectfully requested.

IV. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of the claims are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

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